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Operations

SERENE BYTE/PACER WARE PROCEDURES

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This instruction establishes procedures for the 51 FW to accomplish Electronic Warfare Integrated Reprogramming (EWIR) in the event of a SERENE BYTE (SB) or PACER WARE (PW) and implements AFD 10-7, *Command and Control Warfare*. Reference: AFI 10-703. This instruction applies to all 51 FW units involved with EWIR.

SUMMARY OF REVISIONS

This revision adds the Defense Messaging Service (DMS) capability and introduces a new checklist.

1. General:

- 1.1. The SB/PW process reprograms Electronic Warfare systems rapidly and efficiently to meet a changing threat. The 51 FW systems affected are the ALR-69 and ALR-56M Radar Warning Receivers (RWRs), the ALQ-184 Electronic Attack (EA) Pod, the ALE-47 Countermeasures Dispenser System (CMDS), and the ALE-50 Towed Decoy.
- 1.2. This instruction only applies to the 51 FW. Tenant units stationed at Osan AB (5 RS, 31 SOS, and 33 RQS) have separate procedures for SB/PW.
- 1.3. The procedures for SB and PW are the same except that SB is an exercise and PW is a real world EWIR event. A PW is a change necessary for combat operations and requires every affected system to be reprogrammed. Timeliness is a very critical element of a SB/PW.
- 1.4. The event coordinator for a SB/PW is the Wing Electronic Warfare Officer (EWO), the Wing Electronic Combat Pilot (ECP), or the designated representative. The Wing EWO's office is 51 OSS/OSP, Wing Weapons and Tactics. The alternate event coordinator is either an OSP designated alternate or one of the squadron ECPs. See [Attachment 1](#) for a phone contact list.

2. Responsibilities:

2.1. The 51 OSS/OSP will keep a current SB/PW event coordinator letter on file with the Base Communication Center (BCC), 51 CS/SCBCC. This letter will provide instructions for contacting the event coordinator and list the personnel authorized to receive SB/PW messages. The letter should be updated every 90 days.

2.2. Each unit should develop its own checklist based on this instruction to assist in accomplishing SB/PW events. In addition, 51 FW Form 101 (EF), EWS Section ALQ-184EA POD or AIS ALR-69 RWR Tracking Table, and 102 (EF), 25 FS/36 FS Aircraft/System Tracking Table, should be used to track reprogramming. These forms are available through the Osan Home Page at:

https://www.osan.af.mil/Forms_Pubs.html.

3. Serene Byte/Pacer Ware Flow:

3.1. A SB/PW event normally starts with the arrival of a SB or PW message via the 51 FW-PW DMS e-mail account on the Secret Internet Protocol Router Network (SIPRNET). However, SB/PW messages may also arrive at the BCC. In this case, the BCC will contact the Wing EWO. If the Wing EWO is unavailable, the BCC will contact the next person on the SB/PW event coordinator letter. The contacted individual will then assume event coordinator responsibilities.

3.2. The normal flow and definition of messages for a SB/PW is as follows:

3.2.1. An initial message may alert the wing of an impending SB/PW event, or it could be no-notice with a System Impact Message (SIM) arriving first. The SIM describes parametric changes to threats and details what effect the changes will have on a particular aircraft system.

3.2.2. A Reprogramming Impact Message (RIM) may follow the SIM. The RIM details how the Reprogramming Center plans to compensate for the change in the threat and how the reprogramming actions affect the system. A Time Compliance Technical Order (TCTO) or Maintenance Impact Message (MIM) may also arrive that defines the reprogramming procedures for maintenance personnel.

3.2.3. Along with or immediately after the RIM, the data (reprogramming software) will become available on the Electronic Combat Bulletin Board System (BBS). The BBS is a classified network that can be accessed through a STU-III modem or through the SIPRNET.

3.2.4. The Implementation Message (IMP) is the authorization from HQ PACAF to reprogram the affected systems. However, prior to reprogramming any 51 FW aircraft or EA pod, the event coordinator will brief the 51 OG/CC on the effect of the SB/PW. Aircraft and EA pods will not be reprogrammed without approval from the 51 OG/CC. In addition, the event coordinator will notify the appropriate fighter squadron commanders and operations officers concerning the effect of the SB/PW.

3.2.5. The interval between messages can vary from a few hours, as in a SB exercise, to several months for a PW dealing with a routine software upgrade.

3.3. When the maintenance units are notified of the SB/PW, they should download the appropriate software from the BBS. EDNA and PLV equipment may be loaded with the new software at that time. However, reprogramming will not commence until the IMP arrives, and the 51 OG/CC approves the reprogramming. 51 OG/CC approval will be disseminated by the event coordinator.

3.3.1. For ALQ-184 reprogramming, the Electronic Warfare Systems (EWS) Section, 51 MXS/LGMVE, will load two PLVs for the 36 FS. The 36 FS will pick up the PLVs from the EWS Section to reprogram EA pods on F-16 aircraft. 51 MXS/LGMVE is responsible for reprogramming EA pods in the backshop.

3.3.2. For ALQ-184 and ALR-69 reprogramming, the 25 FS will load their own PLVs.

3.3.3. For ALR-56M, ALE-47, and ALE-50 reprogramming, the 36 FS Specialist Flight will load the EDNAs.

3.4. The 51 FW SB goal is for the first unit to be reprogrammed within two hours of the event coordinator briefing the 51 OG/CC.

3.5. All units will compile their reprogramming times, pertinent actions, and problems encountered when reprogramming ceases and then pass this information to the Wing EWO as soon as practical. The 51 FW Form 101 and the 51 FW Form 102 should be used to annotate this data.

3.6. The Wing EWO will use the compiled data following a SB/PW to generate the Unit Loading Message (ULM). For a PW, the ULM should be generated when the readily available aircraft or EA pods are reprogrammed. A statement will be included in the ULM explaining why the remaining units were not reprogrammed and when the reprogramming is projected to be complete. For a SB, the ULM will be composed when the required number of systems is reprogrammed.

4. Procedures:

4.1. Base Communications Center (51 CS/SCBCC). Since SB/PW messages may arrive at the BCC, the SB/PW process may start with the BCC. When a SB/PW message arrives, the BCC will reference the 51 OSS/OSP event coordinator letter to contact the Wing EWO. If the Wing EWO cannot be reached, the BCC will contact the next person on the event coordinator letter. This individual then becomes the event coordinator until the Wing EWO is eventually contacted.

4.2. Event Coordinator.

4.2.1. Although SB/PW messages may arrive via the BCC, they normally are disseminated via DMS. 51 OSS/OSP personnel will check the 51 FW-PW e-mail account on a daily basis.

4.2.2. Once a SB/PW message arrives, the event coordinator will reply to sender that the message has been received, and determine the urgency of the message. At an appropriate time, the event coordinator will brief the 51 OG/CC on the SB/PW implications. When the IMP is disseminated, the event coordinator will coordinate with the 51 OG/CC for approval to load the software into the affected systems. Software will not be loaded into aircraft systems without the approval of the 51 OG/CC. In addition, the event coordinator will notify the appropriate fighter squadron commanders and operations officers concerning the effect of the SB/PW.

4.2.3. As SB/PW messages become available, the event coordinator will ensure that pilots are briefed on the ramifications of the SB/PW. The squadron ECP normally conducts these briefings.

4.2.4. The event coordinator should monitor the progress of the reprogramming. When all readily available aircraft or EA pods have been reprogrammed, the event coordinator should collect the reprogramming start and stop times from the appropriate maintenance unit. The 51 FW Forms 101 and 102 were designed for this purpose. The event coordinator should then compose the ULM and submit it as described in the IMP. Aircraft or EA pods that will not be reprogrammed in a timely

manner must be explained in the ULM. The event coordinator will ensure that remaining aircraft or EA pods are reprogrammed when they become available.

4.3. EWS Section (51 MXS/LGMVE).

4.3.1. The event coordinator will inform the EWS Section of applicable SB/PW messages and distribute them as necessary. When the new software becomes available, the EWS Section should download the software from the BBS and store it on PLVs. After the IMP arrives and the event coordinator acquires 51 OG/CC approval, the aircraft or EA pods should be rapidly loaded with the software upgrade.

4.3.2. If the SB/PW affects the EA pod, the EWS Section will load two PLVs with the appropriate software for the 36 FS Specialist Flight. The EWS Section should use in-shop support equipment to reprogram EA pods in the shop.

4.3.3. The EWS Section will record EA pod serial numbers and reprogramming start and stop times for the backshop pods. The 51 FW Forms 101 and 102 were designed for this purpose. This data will then be forwarded to the event coordinator for inclusion into the ULM.

4.4. 36 FS Specialist Flight (36 FS/MAGS).

4.4.1. The event coordinator will contact the 36 FS Specialist Flight when applicable SB/PW messages arrive and distribute them as necessary. When new software becomes available for the ALE-47, ALE-50, or the ALR-56M, the Specialist Flight should download the software from the BBS and store it on EDNAs. After the IMP arrives and the event coordinator acquires 51 OG/CC approval, the F-16s should be rapidly loaded with the software upgrade.

4.4.2. If the SB/PW affects the EA pod, the EWS Section will load two PLVs with the appropriate software and give them to the 36 FS Specialist Flight to reprogram EA pods on F-16 aircraft. The 36 FS Specialist Flight should coordinate with the EWS Section to ensure the PLVs arrive on the flight line in a timely manner.

4.4.3. The 36 FS Specialist Flight will record aircraft tail numbers, EA pod serial numbers, and reprogramming start and stop times for the work they accomplish. The 51 FW Forms 101 and 102 were designed for this purpose. This data will then be forwarded to the event coordinator for inclusion into the ULM.

4.5. 25 FS Specialist Flight (25 FS/MAGS).

4.5.1. The event coordinator will contact the 25 FS Specialist Flight when applicable SB/PW messages arrive and distribute them as necessary. When new software becomes available for the ALQ-184 or the ALR-69, the Specialist Flight should download the software from the BBS and store it on the PLVs. After the IMP arrives and the event coordinator acquires 51 OG/CC approval, the A-10s should be rapidly loaded with the software upgrade.

4.5.2. The 25 FS Specialist Flight will record aircraft tail numbers, EA pod serial numbers, and reprogramming start and stop times for the work they accomplish. The 51 FW Forms 101 and 102 were designed for this purpose. This data will then be forwarded to the event coordinator for inclusion into the ULM.

4.6. MOC (51 FW/OCM) . The event coordinator will inform the MOC when SB/PW reprogramming begins and ends. The MOC may serve as a communications facilitator for the process. The MOC

should be informed of pertinent changes in the SB/PW situation through the fighter squadron Pro Supers and the EWS Section.

4.7. Squadron ECPs. The primary role of a squadron ECP in the SB/PW process is to ensure that pilots are briefed on relevant SB/PW information. In addition, a squadron ECP may be tasked to be the event coordinator. If a squadron ECP is the event coordinator, he should follow the guidance in paragraph 5.2. and follow the checklists in [Attachment 2](#) and [Attachment 3](#) of this instruction.

5. Event Conclusion.

5.1. When all readily available aircraft or EA pods have been reprogrammed, the event coordinator should collect the reprogramming start and stop times from the appropriate maintenance unit. The 51 FW Forms 101 and 102 were designed for this purpose. The event coordinator should then compose the ULM and submit it IAW the IMP. Aircraft or EA pods that will not be reprogrammed in a timely manner must be explained in the ULM. The event coordinator will ensure that remaining aircraft or EA pods are reprogrammed when they become available.

5.2. The event coordinator will inform the 51 OG/CC and the MOC when reprogramming is complete.

6. Forms Prescribed: 51 FW Forms 101 and 102.

DAVID E. CLARY, Brigadier General, USAF
Commander

Attachment 1**SERENE BYTE/PACER WARE PHONE LIST**

<u>AGENCY</u>	<u>CONTACT</u>	<u>OFFICE SYMBOL</u>	<u>PHONE #</u>
51st Operations Group Commander	Same	51 OG/CC	1467/6604*
51 FW Electronic Warfare Officer (EWO)	Same	51 OSS/OSP	8197*/5788
Base Communications Center (BCC)	Shift Supervisor	51 CS/SCMOBR	4291*/5565
Maintenance Operations Center (MOC)	Senior Coordinator	51 FW/OCM	4105/2963*
25 FS Electronic Combat Pilot (ECP)	Same	25 FS/DOW	5077/5112*
36 FS Electronic Combat Pilot (ECP)	Same	36 FS/DOW	8469/9133*
36 FS Specialist Flight	Any Specialist	36 FS/MAGS	2649/2621*
Electronic Warfare Systems Section (EWS)	Shift Supervisor	51 MXS/LGMVE	6648*/8584*
Avionics Supervision	Flight Chief	51 MXS/LGMV	2632/8766
Mission Director	Same	WOC	7038

* STU-III

- Contact the 51 FW EWO with any phone number changes.

Attachment 2**SERENE BYTE/PACER WARE EVENT COORDINATOR CHECKLIST (CERE AND CONTINGENCY)**

1. _____ Check the 51 FW-PW e-mail account on the TBMCS-UL computer for new SB/PW messages daily. When a new message arrives, reply to sender that the message has been received and print the message. If a PW message arrives during an exercise, print it for the Wing EWO, but take no further action. Messages may also arrive via the Base Comm Center.
2. _____ When a new message arrives, look at the SUBJECT line and determine the message type. The message should be one of the following: a System Impact Message (SIM), a Maintenance Instruction Message (MIM), a Reprogramming Impact Message (RIM), or an Implementation Message (IMP).
 - a. SIM messages inform the pilots of limitations in current software.
 - b. MIM messages give reprogramming instructions to the maintainers.
 - c. RIM messages are a combination of MIMs and SIMs.
 - d. IMP messages provide MAJCOM permission to load software into associated equipment.
3. _____ Contact the OG/CC on a secure phone (TAC Phone 446-1045 at the WOC and 446-1042 at the AWOC) and brief him on the message. **DO NOT** load any software without the OG/CC's permission and an IMP message. If the message is an IMP, get the OG/CC's permission to load the software.
4. _____ Contact the Mission Director (TAC Phone 446-1035 at the WOC and 446-1155 at the AWOC) and inform him that we have a SERENE BYTE or a PACER WARE in progress.
5. _____ On the TBMCS-UL computer, paste the message in an e-mail and e-mail the message to 36FS-INTEL or 25FS-INTEL as appropriate. In the e-mail to the Intel troops, tell them to pass a hard copy of the message to the Top 3. If the e-mail is for a RIM or a MIM, the e-mail should tell the Top 3 to have the maintenance specialists download the appropriate software from the Electronic Bulletin Board System (BBS) and store it on the EDNA or PLV.
6. _____ If the message affects the ALQ-184, the 51 MXS troops (backshop) need a copy of the message. On the TBMCS-UL computer, forward the message to the 51 MXS/LGMV organizational account. Follow this e-mail with a STU-III phone call to the 51 MXS UCC at 784-8766 or 784-2632.
7. _____ Contact the appropriate fighter squadron Top 3 (25 FS, TAC Phone 446-1018 or 36 FS, TAC Phone 446-1048). Tell him to get a copy of the message from the appropriate Intel SIPRNET e-mail accounts, and have him get a copy of the message to the maintenance specialists. Be very directive with the Top 3, because he is your only link to the maintainers. If the message is a MIM or a RIM, tell the Top 3 to have maintenance download the software from the BBS. The maintainers will know what this means. If the message is a SIM or a RIM, have the Top 3 brief the pilots as appropriate.
8. _____ As a courtesy, contact 51 FW/OCOM (the MOC) at STU-III 784-2963, and inform them that we have a SERENE BYTE or a PACER WARE in progress.

9. _____ If the message is a MIM, SIM, or RIM, your job is now complete. If the message is an IMP, proceed to step 10.
10. _____ Inform the 51 OG/CC when reprogramming is complete. The 51 FW **goal is to have the first unit reprogrammed within 2 hours** of the event coordinator briefing the 51 OG/CC.
11. _____ Collect the 51 FW Forms 101 and 102 from the appropriate maintenance units when reprogramming is complete and compose the Unit Loading Message (ULM) IAW AFI 10-703.

Attachment 3**SERENE BYTE/PACER WARE EVENT COORDINATOR CHECKLIST (PEACETIME)**

1. _____ Check the 51 FW-PW e-mail account on the TBMCS-UL computer for new SB/PW messages daily. Messages may also arrive via the Base Comm Center.
2. _____ When a message arrives, look at the SUBJECT line and determine the message type. The message should be one of the following: a System Impact Message (SIM), a Maintenance Instruction Message (MIM), a Reprogramming Impact Message (RIM), or an Implementation Message (IMP).
 - a. SIM messages inform the pilots of limitations in current software.
 - b. MIM messages give reprogramming instructions to the maintainers.
 - c. RIM messages are a combination of MIMs and SIMs.
 - d. IMP messages provide MAJCOM permission to load software into associated equipment.
3. _____ Review the message and determine if the message is for a SB or a PW. If the message is for a SB, proceed with the urgency normally associated with an exercise, and go to item number 5. If the message is for a PW, proceed to item number 4.
4. _____ Determine the urgency associated with the PW message. Feel free to contact the appropriate squadron ECP for help in determining the significance of the new software. Helpful home phone numbers can be found in the SB/PW book in the Wing Weapon and Tactics library. If the message is urgent, proceed to item number 5. If the PW message is not urgent, wait till the next duty day (assuming you are running this checklist on a weekend) and then proceed to number 5.
5. _____ Brief the 51 OG/CC on the impact of the SB/PW on 51 FW aircraft systems. If the message is an IMP, get the OG/CC's permission to load the software. **DO NOT** load any software without the OG/CC's approval and an IMP message.
6. _____ Contact the appropriate fighter squadron commanders and operations officers concerning the effect of the SB/PW. Also, contact the appropriate squadron ECP, give him a copy of the message, and ensure he has a plan for briefing the SB/PW to the pilots in his squadron.
7. _____ Contact the appropriate maintenance organization and give them a copy of the message. See 51 FWI 10-701 **Attachment 1** for a list of phone numbers.

_____ 51 MXS/LGMVE (EWS Shop) for ALQ-184

_____ 25 FS/MA (Specialist Flight) for ALQ-184 or ALR-69

_____ 36 FS/MA (Specialist Flight) for ALR-56M, ALE-47, ALE-50, or ALQ-184
8. _____ Inform 51 FW/OCM, the MOC, when reprogramming starts, and when it is complete.
9. _____ Collect the 51 FW Forms 101(EF), and 102 (EF) from the appropriate maintenance units when reprogramming is complete, inform the OG/CC, and compose the Unit Loading Message (ULM) IAW the IMP message and AFI 10-703.